Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

NOTES FOR STUDENTS

Recent anatomical papers.—A very detailed account of the leaf structure of American Lauraceae has been given by PETZOLD,[5] his purpose having been to establish at least generic anatomical characters. The leaf structure, however, proves to be quite uniform, and generic distinctions are not feasible. For example, a concentric structure is characteristic of Silvia, but occurs also in a few species of Phoebe and Nectandra; a hypoderm is developed in Cryptocarya and Hufelandia, but also in some species of Ocotea, Persea, and other genera; a closed sheath of stereome surrounds the veins constantly in some genera, but not in others; crystals of calcium oxalate, otherwise so frequent in this family, do not occur in Lindera and Dicypellium, but they are also absent in several species of other genera. The paper is a welcome contribution to the knowledge of the anatomy of these plants, even if no generic characterization seems possible.

The structure of leaves, seeds, and pollen of Polemoniaceae have been examined by HÜLLER,[6] his material including a large number of American species. It deserves mention that calcium oxalate was detected in certain species of Collomia and Gilia as single crystals, and as druids in the monotypic Bonplandia. The stomata were always observed to lack subsidiary cells, thus agreeing with the type of Ranunculaceae. Trichomes as covering-hairs and as glandular hairs are very common, representing several characteristic forms. In the midrib of *Phlox Drummondii* and various species of Gilia, the mestome strand contains two or sometimes several groups of leptome.

In regard to the structure of the seed coat, Phlox is the only genus in which the epidermis contains mucilage only in the outer wall beneath the cuticle. The peculiar spirals of cellulose were noticed in most species of all genera except Phlox. Inside the epidermis there are usually some strata of compressed tissue and a pigment layer; but in Cobaea a fourth tissue was absent, namely, woody parenchyma beneath the epidermis. The nutritive tissue, which is relatively sparingly developed, contains oil and aleurone.

The pollen grains are globose or elliptic, and the exine is never smooth, but covered with protuberances in the shape of ridges or granules in numberless variations. There are always more than three germ-pores, from four to many, and in some cases scattered irregularly over the surface. Although the author had to depend upon dried specimens, the results are nevertheless quite interesting and of importance to systematic anatomy. However, a study of fresh material, including the stem and root, would be highly desirable.

Forty-three species of Meliosma (Sabiaceae) have been examined by DIHM.[7] The palisade tissue is very characteristic in representing a modification of HABERLANDT'S "arm palisade parenchyma," differing from it in the several arms or branches being borne upon a larger basal cell. This peculiar modification is called by the author "coralloid palisade parenchyma," and is known only in Meliosma. The pneumatic tissue is often very open and passes insensibly into the palisade tissue; and it appears as if the chlorenchmya might be composed merely of pneumatic tissue modified somewhat on the upper face of the leaf-blade. Calcium oxalate occurs in all the species of Meliosma, and mostly as druids; globose conglomerations, however, were also observed in some few species.—THEO. HOLM.

---

[5] PETZOLD, V., Systematisch-anatomische Untersuchungen über die Laubblätter der amerikanischen Lauraceen. Bot. Jahrb. **38**:445–474. 1907.

[6] HÜLLER, G., Beiträge zur vergleichenden Anatomie der Polemoniaceen. Beih. Bot. Centralbl. **21**^{1}:173–244. *pl. 8. figs. 25.* 1907.

[7] DIHM, H., Das Blatt der Gattung Meliosma in anatomischer Hinsicht. Beih. Bot. Centralbl. **21**^{1}:117–147. *pls. 5–6. figs. 21.* 1907.

Origin of the yeasts.—The problem of the autonomy of the group of Saccharomyces has been reopened by the researches of VIALA and PACOTTET.[8] In two ascomycetes, *Gloeosporium ampelophagum*, the anthracnose of the grape, and *G. nervisequum*, the anthracnose of the plane-tree, they have found a complex polymorphism, the most striking feature of which is the presence of conidia capable of budding in yeast-like fashion and of forming endospores in cysts, like yeasts, but which are produced from the true ascomycete mycelium. Other fungi, such as the Mucorineae, Ustilagineae, etc., bud in this fashion also, but the formation of endospores was regarded by HANSEN as a certain characteristic of true yeasts. If these observations of VIALA and PACOTTET are correct, they would seem to indicate that what are known as yeasts may only be forms of polymorphic ascomycetes.

GUILLIERMOND,[9] in reviewing this work, grants that there may be such forms, but strongly suspects that the cultures were impure and contained not only the Gloeosporium but also a yeast living with it. The most experienced observers have been led into errors from this same cause. In defense of the autonomy of the Saccharomycetes and at the same time of the interpretation of the cyst producing endospores as an ascus, GUILLIERMOND[10] gives a general review of the yeast situation. The extended work of HANSEN and his students has made it highly improbable that our industrial yeasts could ever revert to the mycelial condition, that is, their characters have become so fixed that now they form an independent and distinct group of the ascomycetes. The conjugations in such yeasts as *Zygosaccharomyces Barkeri* and *Schizosaccharomyces octosporus*, as they have been observed by BARKER[11] and GUILLIERMOND, is the strongest reason for considering the resulting product as an ascus. This conjugation, with its fusion of nuclei and subsequent division into endospores, is regarded by GUILLIERMOND as the equivalent of the fusion of the two nuclei in the ascus and the formation of ascospores. It is true that a majority of the yeasts do not show this conjugation, but

---

[8] VIALA et PACOTTET, Compt. Rend. Acad. Sci. Paris **142**:458–461. 1906.

[9] GUILLIERMOND, A., A propos de l'origine des levures. Ann. Mycol. **5**:49–69. 1907.

[10] GUILLIERMOND, A., Rev. Gén. Bot. **17**:337–376 *pls 6–9* 1905.

[11] BARKER, Phil. Trans. Roy. Soc. London B. **194**:467–485. *pl. 46.* 1901.